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Claims:

1. Preamble structure for the synchronization of a receiver of a OFDM transmission system, wherein
 - 10 - the structure comprises at least one first part (A-FIELD),
 - the time domain signal of the at least one first part (A-FIELD) being generated by IFFT transforming frequency domain sequences of 12 complex symbols mapped to a 64 point IFFT according to the following scheme:

$$S_{-26,26} = \text{sqrt}(2) * \{0,0,0,0, S1,0,0,0, S2,0,0,0, S3,0,0,0, S4,0,0,0, S5,0,0,0, S6,0,0,0,$$
 - 15 $S7,0,0,0, S8,0,0,0, S9,0,0,0, S10,0,0,0, S11,0,0,0, S12,0,0,0,0\}$,
 wherein the remaining valued are set to zero,
 and the frequency domain sequence S_A of the at least one first part (A-FIELD) is one of
 $S1\dots S12 = +A, +A, +A, +A, +A, -A, -A, +A, +A, -A, +A, -A$
 $S1\dots S12 = +A, +A, +A, +A, -A, -A, +A, +A, -A, +A, -A, +A$
 - 20 $S1\dots S12 = +A, +B, -A, -B, -A, -B, -A, +B, +A, -B$
 $S1\dots S12 = +A, +B, -A, -B, +A, -B, +A, -B, +A, -B, +A, +B$
 $S1\dots S12 = +A, -B, -A, +B, -A, +B, -A, +B, -A, -B, +A, +B$
 $S1\dots S12 = +A, -B, -A, +B, +A, +B, +A, +B, +A, -B, -A, -B$
 or an order reversed modification thereof.
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 2. Preamble structure,
 characterized in that
 it comprises at least one second part (B-FIELD) and
 the frequency domain sequence of the at least one second part (B-FIELD) is
 $30 S_B = (1+i), (-1-i), (1+i), (-1-i), (-1-i), (1+i), (-1-i), (-1-i), (1+i), (1+i), (1+i), (1+i)$.

3. Preamble structure according to claim 2,
 characterized in that
 the at least one second part follows the at least one first part in the time domain.

5 4. OFDM transmitter,
 designed for transmitting a synchronization preamble according to anyone of the preceding claims in the BCCH channel of an OFDM system.

10 5. Method for the synchronization of a receiver of a OFDM transmission system,
 wherein
 - the structure comprises at least one first part (A-FIELD) in the time domain,
 - the time domain signal of the at least one first part (A-FIELD) and the at least one second part (B-FIELD) being generated by IFFT transforming frequency domain sequences of 12 complex symbols mapped to a 64 point IFFT according to the
 15 following scheme:

$$S_{26,26} = \text{sqrt}(2) * \{0,0,0,0, S1,0,0,0, S2,0,0,0, S3,0,0,0, S4,0,0,0, S5,0,0,0, S6,0,0,0, S7,0,0,0, S8,0,0,0, S9,0,0,0, S10,0,0,0, S11,0,0,0, S12,0,0,0,0\},$$

wherein the remaining valued are set to zero, and

the frequency domain sequence S_A of the at least one first part (A-FIELD) is one of

$$20 S1 \dots S12 = +A, +A, +A, +A, +A, -A, -A, +A, +A, -A, +A, -A$$

$$S1 \dots S12 = +A, +A, +A, +A, -A, -A, +A, +A, -A, +A, -A, +A$$

$$S1 \dots S12 = +A, +B, -A, -B, -A, -B, -A, +B, +A, -B$$

$$S1 \dots S12 = +A, +B, -A, -B, +A, -B, +A, -B, +A, -B, +A, +B$$

$$S1 \dots S12 = +A, -B, -A, +B, -A, +B, -A, +B, -A, -B, +A, +B$$

$$25 S1 \dots S12 = +A, -B, -A, +B, +A, +B, +A, +B, +A, +B, -A, -B$$

or an order reversed modification thereof.

6. Method according to claim 5,

characterized in that

30 it comprises at least one second part (B-FIELD) and

the frequency domain sequence of the at least one second part (B-FIELD) is

$$S_B = (1+i), (-1-i), (1+i), (-1-i), (-1-i), (1+i), (-1-i), (-1-i), (1+i), (1+i), (1+i), (1+i)$$

7. Method according to claim 6,
characterized in that
the at least one second part follows the at least one first part in the time domain.